

BS
C
Fig. 8 depicts test results comparing the sequencing of random nucleotide sequences using various probes as described herein with sequencing using conventional probes. The bracketed number pairs, such as (4,5) represent the type of (s,r) probe set used. A (9,0) probe set is a conventional, or classical, probe set.

Page 24, replace the paragraph beginning at line 33 and ending on page 25 with the following replacement paragraph:

BS
One embodiment of the systems and methods described herein is a computer system configured to sequence a nucleotide sequence by analyzing a spectrum generated according to the systems and methods described herein, e.g., by executing a computer program in a computer language, e.g., Fortran, C, Java, etc., based upon the pseudocode of Table 1. In an additional embodiment, the systems and methods described herein relate to a disk, CD, or other permanent computer-readable storage medium that encodes a computer program capable of reconstructing a nucleotide sequence by analyzing a spectrum generated using gapped probes such as a program based on the pseudocode of Table 1.

IN THE CLAIMS:

- BS
1. (Amended) A nucleic acid probe, comprising a sequence of universal and designate nucleotides ordered in a pattern, wherein
 - (a) the pattern comprises a first string of universal nucleotides followed by a first segment, and a second string of universal nucleotides followed by a second segment,
 - (b) the first string and the second string each comprise two or more consecutive universal nucleotides; and
 - (c) the first segment and the second segment each comprise a designate nucleotide.
 2. The probe of claim 1, having a universal nucleotide selected from the group consisting of 5-nitroindole and 3-nitropyrrole.
 3. The probe of claim 1, further comprising at least two contiguous designate nucleotides bound to an end of the sequence.

B8
SUB
D1
4. (Amended) A set of oligonucleotide probes, comprising a plurality of instances of a sequence of universal and designate nucleotides and/or nucleotide analogs, wherein the universal and designate nucleotides and/or nucleotide analogs are ordered in an iterative pattern.

5. (Canceled).

B9
6. (Amended) The set of oligonucleotide probes of claim 4, wherein the universal nucleotides and/or nucleotide analogs are selected from the group consisting of 5-nitroindole and 3-nitropyrrole.

B10
SUB
B2
7. (Amended) A set of oligonucleotide probes, comprising a plurality of instances of a sequence of universal and designate nucleotides and/or nucleotide analogs ordered in a pattern, wherein the probes are displayed on a solid support.

SUB
B11
D3
8. (Amended) A sequencing array, comprising
a substrate, and
a set of oligonucleotide probes disposed thereon, wherein each probe comprises an instance of a pattern of universal and designate nucleotides and/or nucleotide analogs such that the set comprises a plurality of instances of the pattern.

B12
9. (Amended) The array of claim 8, wherein the pattern is iterative.

B13
10. (Amended) The array of claim 8, wherein the universal nucleotides and/or nucleotide analogs are selected from the group consisting of 5-nitroindole and 3-nitropyrrole.

11. (Amended) The array of claim 8, wherein each particular instance is associated with a particular location in the array.

12. (Amended) The array of claim 8, wherein each probe further comprises a sequence of at least two contiguous designate nucleotides and/or nucleotide analogs bound to an end of the pattern.

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13. (New) An oligonucleotide probe, comprising a sequence of universal and designate nucleotides and/or nucleotide analogs ordered in a pattern, wherein

(a) the pattern comprises a first string of universal nucleotides and/or nucleotide analogs, followed by a first segment, and a second string of universal nucleotides and/or nucleotide analogs followed by a second segment,

(b) the first and second strings each comprise two or more consecutive universal nucleotides and/or nucleotide analogs, and

(c) the first and second segments comprise at least one designate nucleotide and or nucleotide analog.

21 14. (New) The probe of claim 13, having a universal nucleotide and/or nucleotide analog selected from the group consisting of 5- nitroindole and 3-nitropyrrole.

22 15. (New) The probe of claim 13, further comprising at least two contiguous designate nucleotides and/or nucleotide analogs bound to an end of the sequence.

23 16. (New) The probe of claim 13, wherein the universal and designate nucleotides and/or nucleotide analogs are linked by analogs of phosphodiester bonds.

24 17. (New) The probe of claim 13, wherein the universal and designate nucleotides and/or nucleotide analogs are peptide nucleic acids.

25 18. (New) An oligonucleotide probe, comprising a sequence of universal and designate nucleotides and/or nucleotide analogs ordered in a pattern, wherein the pattern comprises a root and an iterated unit, and wherein the length of the root is identical to the length of the iterated unit.

26 19. (New) An oligonucleotide probe of claim 14, wherein each iterated unit comprises a string of universal nucleotides and/or nucleotide analogs followed by one or more designate nucleotide and/or nucleotide analog.